UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

FEB 1 1 2008

Mr. Wayne Gieselman, Director
Environmental Protection Division
Iowa Department of Natural Resources
Wallace Building
502 East 9th Street
Des Moines, Iowa 50319

Dear Mr. Gieselman:

The United States Environmental Protection Agency (EPA) has completed its review of the revisions to Iowa's water quality standards under Iowa's Code of State Regulations (567 Iowa Administrative Code, Chapter 61). The Iowa Department of Natural Resources (IDNR) sent revisions to Iowa's water quality standards to EPA for review, as required under federal regulations at 40 CFR §131.20, as two separate submissions dated March 22, 2006, and November 28, 2007. The new or revised water quality standards (WQS) were approved by the Iowa Environmental Protection Council on January 17, 2006, and October 1, 2007; published in the Code of State Regulations on February 15, 2006, and October 24, 2007; and formally submitted to EPA with the Attorney General certifications. EPA received these WQS packages on March 28, 2006 and December 13, 2007.

Under section 303(c) of the Clean Water Act (CWA), 33 U.S.C. § 1313(c), states are to review their WQS at least every three years and submit any revised or new WQS to EPA for review and approval. Federal regulations at 40 CFR §§ 131.20, 131.21, and 131.22 implement these requirements. As part of the review process, IDNR held six public hearings for each rule revision, to receive public input and comment on the proposed WQS revisions. Based on our review, Iowa's public participation process is consistent with and satisfies the procedural requirements of 40 CFR § 131.20.

EPA commends the state's commitment to protecting its waters by establishing water quality standards that significantly increase the environmental protections afforded waters in the state. These newly adopted standards begin with the foundation that all perennial waters should be protected for aquatic life and recreational uses unless and until actual stream assessments show that the water does not deserve that level of protection. Another important aspect of this rulemaking is the revised water quality criteria designed to protect those uses. These standards are an important first step in making sure that the waters in Iowa are designated with the proper uses and protected by the necessary water quality criteria. In short, these standards play an essential role in improving the overall water quality in the state of Iowa.

TODAY'S DECISION

As Director of the Water, Wetlands and Pesticides Division, I am charged with the responsibility of reviewing and approving or disapproving new or revised state WQS under section 303(c) of the CWA. With this letter, EPA is approving the new or revised WQS submitted by IDNR. EPA is not taking action on certain provisions included in IDNR's submission that are not new or revised WQS. The provisions addressed in today's decision are listed below. The enclosure to this letter provides a more detailed description of EPA's rationale for approving the new or revised WQS and for not taking action on provisions that are not new or revised WQS.

SECTION I – Items EPA is Approving

A. Subrule 61.3(1) Surface Water Classification, paragraph "b," Designated use segments, designating as Class B(WW-1) Warm Water – Type 1 all of Iowa's perennial rivers and streams and intermittent streams with perennial pools that are not currently designated, and designating as Class A1 – Primary Contact Recreational Use all of Iowa's perennial rivers and streams and intermittent streams with perennial pools.

B. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents: Water quality criteria for protection of aquatic life.

C. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents: Water quality criteria for protection of human health.

D. Subrule 61.2(5), Implementation Strategy, introductory paragraph eliminating the exceptions of the design low flow provisions.

E. Subrule 61.3(1) *SurfaceWater Classification*, paragraph "a," General use segments.

F. Subrule 61.3(1), *Surface Water Classification*, paragraph "b," subparagraph (8), renaming and revising the definition of a Significant resource warm water (Class B(WW)), to Warm water – Type 1 (Class "B(WW-1)."
Subrule 61.3(1) *Surface Water Classification*, paragraph "b," subparagraph (9), revising the definition of the aquatic life designated use Limited resource warm water (Class B(LR)), to Warm water – Type 2 (Class "B(WW-2)").
Subrule 61.3(1) *Surface Water Classification*, paragraph "b," subcategory (10), adopting the new aquatic life designated use Warm water – Type 3 (Class "B(WW-3)").

G.. Subrule 61.3(1) *Surface Water Classification*, paragraph "b," subparagraph (12) by adopting a new human health (Class "HH") designated use category.

H. Subrule 61.3(2) introductory paragraph, *General water quality criteria*; revising the definition applicable to the implementation of narrative criteria.

I. Subrule 61.3(3) *Specific water quality criteria*, paragraph "*b*," introductory paragraph, *Class "B" waters*, to account for the revised aquatic life designated use categories Class B(WW-1), Class B(WW-2), and the new Class B(WW-3).

J. a. Subrule 61.3(3), *Specific water quality criteria*, paragraph "b," *Class "B" waters*, subparagraph (6)3, Early life stage for ammonia criteria revised to include the revised warm water Class B(WW-1) use category.
b. Subrule 61.3(3), *Specific water quality criteria,* paragraph "b," *Class "B" waters*, subparagraph (6)4, Early life stage for ammonia criteria revised to include the revised warm water Class B(WW-2) and new B(WW-3) use subcategories.

K. Subrule 61.3(3), *Specific water quality criteria*, new paragraph *d, Class "HH" waters.*
L. Subrule 61.3(3), Table 1, *Criteria for Chemical Constituents* to include the revised Warm Water Class B (WW-1), Class B(WW-2) and new Class B(WW-3) designated use categories.
M. Subrule 61.3(3), Table 1, *Criteria for Chemical Constituents* to accommodate the new use category Class "HH"; and transfer to Class HH all Human Health – Fish criteria for Class B(WW), Class B(LW) and Class B(CW) designated waters and Human Health – F & W criteria from Class C designated waters.
N. Subrule 61.3(3), header of Table 2, *Criteria for Dissolved Oxygen* to include the revised warm water Class B (WW-1), B(WW-2) and B(WW-3) use categories.
O. Subrule 61.3(3), header of Table 3a, *Acute Criterion for Ammonia in Iowa Streams* to include the revised warm water Class B (WW-1), B(WW-2) and B(WW-3) use categories.
P. Subrule 61.3(5) *Surface Water Classification*, a rule-referenced document, by adding the Class B(WW-1), B(WW-2) and B(WW-3) designated uses to the header of the Surface Water Classification Table; placing the previous Class B(WW) waters into the new Class B(WW-1) designated use, and placing the previous Class B(LR) waters into the new Class B(WW-2) designated use. Class A1 primary contact recreation is also assigned to all rivers and streams identified with the Surface Water Classification Table. The *Surface water classification* document was further revised by striking the date "December 15, 2004" and inserting [effective March 22, 2006].

SECTION II - Items on which EPA is Taking No Action

A. Subrule 61.2(5) *Implementation Strategy* by adding the new provision at 61.2(5)e which provides language about performing use assessments and related use attainability analyses.
B. Subrule 61.3(7), Warm water stream use assessment and attainability analysis protocol.
C. Subrule 61.3(3) to transfer numeric criteria from Table 1, *Criteria for Chemical Constituents*, from the current Class B(LR) use designation to the revised Class B(WW-2) use designation, and the transfer of the current Class B(LR) numeric criteria to the new Class B(WW-3) use designation.
D. Subrule 61.3(3), Table 1, *Criteria for Chemical Constituents*: Water quality criteria for protection of human health - 1,2-trans-Dichloroethylene.
E. Rescind and reserve subrule 61.3(3), paragraph "b," subparagraph (3), numbered paragraph "3." This provision regarding human health was moved to a new subrule 61.3(d)(1).
F. Rescind and reserve subrule 61.3(3), paragraph "b," subparagraph (4).
G. Subrule 61.3(1), paragraph "b," by renumbering subparagraphs (10) and (11), as (11) and (13), to accommodate the new use categories Class "B(WW-3)" and Class "H."
H. Subrule 61.3(1) *Surface Water Classification*, paragraph *b, Designated use segments.*

Today's action on Iowa's new or revised WQS is subject to the consultation requirement of section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536. Section 7(a)(2) requires that federal agencies, in consultation with the United States Fish and Wildlife Service (FWS), ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened or endangered species or result in the destruction or adverse modification of designated critical habitat of such species. Regarding today's action, EPA has initiated consultation under section 7(a)(2) of ESA with FWS, finding that its approval action is "not likely to adversely affect" the threatened, endangered, and/or candidate species in Iowa.

We look forward to continue working with IDNR to continue to update its water quality standards through the triennial review process. If you have any questions regarding this matter, please contact John DeLashmit, Chief, Water Quality Management Branch, at (913) 551-7821 or delashmit.john@epa.gov. The staff level point of contact regarding this letter and attachment is Ann Lavaty, and she may be reached at (913) 551-7370.

Sincerely,

William A. Spratlin
Director
Water, Wetlands and Pesticides Division

Enclosure: Rule Revisions Enclosure

cc: Chuck Corell
IDNR

Lori McDaniel
IDNR

Mike Coffey
U.S. Fish and Wildlife Service

Amy Newman
EPA Headquarters

ENCLOSURE

EPA REGION 7'S REVIEW OF IOWA'S MARCH 22, 2006 AND NOVEMBER 27, 2007 RULE REVISIONS TO IOWA'S WATER QUALITY STANDARDS

Under Section 303(c) of the Clean Water Act ("CWA" or "the Act"), the Administrator of the United States Environmental Protection Agency ("EPA") is charged with reviewing and approving or disapproving state-adopted new or revised water quality standards. To determine if new or revised state water quality standards are consistent with the federal regulations and the CWA, pursuant to EPA regulations 40 C.F.R. §§131.5 and 131.6, EPA must review the water quality standards and determine:

(1) Whether the state has adopted water uses which are consistent with the requirements of the Clean Water Act;
(2) Whether the state has adopted criteria that protect the designated water uses;
(3) Whether the state has followed its legal procedures for revising or adopting standards;
(4) Whether the state standards which do not include the uses specified in Section 101(a)(2) of the Act are based upon appropriate technical and scientific data and analyses, and
(5) Whether the state submission meets the minimum requirements for water quality standards submissions to EPA (See 40 C.F.R. § 131.6).

The Iowa Department of Natural Resources ("IDNR") has authority to develop surface water quality standards ("WQS") that apply to "Waters of the State," which has been defined in Iowa State regulations to mean:

"Any stream, lake, pond, marsh, watercourse, waterway, well, spring, reservoir, aquifer, irrigation system, drainage system, and any other body or accumulation of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the State or any portion thereof." 455B.171.

I. ITEMS EPA IS APPROVING

A. Subrule 61.3(1) Surface Water Classification, paragraph "b," Designated use segments, designating as Class B(WW-1) Warm Water – Type 1 all of Iowa's perennial rivers and streams and intermittent streams with perennial pools that are not currently designated, and designating as Class A1 – Primary Contact Recreational Use all of Iowa's perennial rivers and streams and intermittent streams with perennial pools.

567 IAC 61.3 (455B) (1) *Surface Water Classification. b. Designated use segments.* In the March 22, 2006, revisions to the WQS, IDNR revised the designated use definition by striking the following language; the new language is italicized:

"b. Designated use segments. These are water bodies that maintain flow throughout the year, or contain sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community ~~*of significance*~~*.*

All perennial rivers and streams as identified by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) or intermittent streams with perennial pools in Iowa not specifically listed the surface water classification of 61.3(5) are designated as Class B(WW-1) waters.

All perennial rivers and streams as identified by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) or intermittent streams with perennial pools in Iowa are designated as Class A1 waters.

Designated uses of segments may change based on a use attainability analysis consistent with 61.2(5)"e." Designated use changes will be specifically listed in the surface water classification 61.3(5)."

The CWA and the water quality standards regulations require the protection of "existing" uses, that is, those uses that have occurred since November 28, 1975. States must adopt uses consistent with the goals of 101(a)(2) of the CWA where attainable, and must adopt uses that provide water quality for the protection and propagation of fish, shellfish, and wildlife, and recreation in an on the water. This goal is often referred to as the "fishable/swimmable" goal of the CWA. States are to consider the use and value of the water for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation.

IDNR has designated previously unclassified perennial waters, and intermittent streams with perennial pools, with aquatic life and primary contact recreational uses (i.e., "fishable/ swimmable" uses). The amendment identifies the United States Geological Survey 1:100,000 DLG Hydrography Data Map as a mechanism to identify those perennial rivers and streams that have not been specifically listed in the state's surface water classification table referenced in 61.3(5) but that will be assigned "fishable/swimmable" uses. In order to view these water bodies depicted by the USGS hydrography data map, EPA has provided a map in Attachment 1 of this enclosure.

EPA believes this is an important step in the state's development of water quality standards because of the increased level of environmental protection it will provide to an additional 14,000 stream miles, resulting in over 24,000 waters classified as "fishable/ swimmable." This amendment meets the minimum requirements of CWA § 303(c) and is consistent with EPA's implementing regulations at 40 C.F.R §§ 131.6(a) and 131.10 that require states to develop use designations consistent with Sections 101(a)(2) and 303(c)(2) of the CWA for their waters. EPA hereby approves this amendment.

B. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents: Water quality criteria for protection of aquatic life.

In the November 28, 2007, revisions to the WQS, IDNR adopted new and revised numeric criteria for 21 chemical parameters (see Table 1) to protect aquatic life for the revised Class B(WW-1), B(WW-2) and new Class B(WW-3) use designations, approved in Sections I.F. below.

In revising its regulations, IDNR adopted criteria as stringent as those published by EPA pursuant to Section 304(a) of the CWA for the protection of aquatic life. Table 1, Criteria for Chemical Constituents, for cadmium, copper, lead, nickel and zinc, contains a summary of the previous criteria and corresponding revisions to the criteria for the protection of aquatic life.

In its new regulations, IDNR also adopted acute and chronic hardness-dependent equations which are added as footnotes to Table 1, (footnotes h-l, respectively), that are based on EPA's most recent recommendations (See attached Table 3).

The science supporting EPA's 304(a) recommended criteria support EPA's conclusion that Iowa's criteria will be protective of the aquatic life uses for all three Class B warm water designated use classes. As such, IDNR's revisions are consistent with 40 C.F.R. §§ 131.6(b), (c) and 131.11(a) and (b)(1)(i), and EPA hereby approves these new and revised criteria. As EPA reevaluates criteria published under CWA Section 304(a), EPA expects IDNR to continue to evaluate the need to update Iowa's water quality criteria through the triennial review process.

C. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents: Water quality criteria for protection of human health.

In the November 28, 2007, revisions to the WQS, IDNR adopted new and revised numeric criteria for 41 chemical parameters (see Table 2) for the protection of the new human health use designation approved in Section I.G. below. However, as noted below in Section II.D., an error was found subsequent to the November 28, 2007, submission and EPA is not approving the criteria for 1,2-trans-Dichloroethylene in today's action.

In revising its regulations at subrule 61.3(3), Table 1, Criteria for Chemical Constituents, IDNR adopted criteria as stringent as those published by EPA pursuant to Section 304(a) of the CWA for the protection of human health. Table 2 contains a summary of the previous criteria and corresponding revisions to the criteria for the protection of human health. Where EPA has published guidance criteria for the protection of human health through fish and water consumption under Section 304(a) of the CWA, IDNR adopted EPA's guidance criteria, and for carcinogens, specifically based these criteria on an acceptable incremental risk level of 1×10^{-5}. This risk management decision is included with Chapter 61 and was approved by EPA in 1991.

The science supporting EPA's 304(a) recommended criteria support EPA's conclusion that Iowa's criteria will be protective of human health. As such, IDNR's revisions are consistent with 40 C.F.R. §§ 131.6(b), (c) and 131.11(a) and (b)(1)(i), and EPA hereby approves these new

and revised criteria. As EPA reevaluates criteria published under CWA Section 304(a), EPA expects IDNR to continue to evaluate the need to update Iowa's water quality criteria through the triennial review process.

D. Subrule 61.2(5), Implementation Strategy, introductory paragraph eliminating the exceptions of the design low flow provisions.

567 IAC 61.2(5) *Implementation strategy.*

In the March 22, 2006, revisions to the WQS, IDNR revised the introductory paragraph to the Implementation Strategy Section, eliminating the exceptions of the design low flow provisions, by striking the following paragraphs:

~~*Exceptions may be made for intermittent or low flow streams classified as significant resource warm waters or limited resource warm waters. For these waters, the department may waive the design low flow requirement and establish a minimum flow in lieu thereof. Such waiver shall be granted only when it has been determined that the aquatic resources of the receiving waters are of no significance at flows less than the established minimum, and that the continued maintenance of the beneficial uses of the receiving waters will be ensured. In no event will toxic conditions be allowed to occur in the receiving waters outside of mixing zones established pursuant to subrule 61.2(4). The policy for granting waivers is described in the "Supporting Document for Iowa Water Quality Management Plans," Chapter IV, July 1976, as revised on June 16, 2004. (Copies are available upon request to the Department of Natural Resources, Henry A. Wallace Building, 900 East Grand, Des Moines, Iowa 50319-0034. Copy also on file with the Iowa Administrative Rules Coordinator.)*~~

~~*All minimum flows established under the provisions of this rule will be published by the department. The minimum flows, commonly termed protected flows, are presented in "Iowa Water Quality Standards: Protected Flows For Selected Stream Segments," dated May 19, 2004. A copy of this document is available upon request from the department. A copy is also on file with the Iowa Administrative Rules Coordinator.*~~

The removal of this provision is beneficial to aquatic life, particularly aquatic life that inhabit smaller, headwater streams where flow may be intermittent or very low. As a result of this revision, EPA expects that National Pollution Discharge Elimination System (NPDES) permit limits will be calculated using the appropriate design low flow requirement as stated in Chapter 61.2(5):

61.2(5) *Implementation strategy.* Numerical criteria specified in these water quality standards shall be met when the flow of the receiving stream equals or exceeds the design low flows noted below.

Type of Numerical Criteria Design	Design Low Flow Regime
Aquatic Life Protection (TOXICS)	
Acute	1Q10
Chronic	7Q10
Aquatic Life Protection (AMMONIA - N)	
Acute	1Q10
Chronic	30Q10
Human Health Protection & MCL	
Noncarcinogenic	30Q5
Carcinogenic	Harmonic mean

Based on the above, this revision meets the minimum requirements of CWA § 303(c) and is consistent with 40 C.F.R. § 131.6(f), thus, EPA hereby approves this revision.

E. Subrule 61.3(1) Surface water Classification, paragraph "a," General use segments.

567 IAC 61.3 (455B) *Surface Water Quality criteria. Surface Water Classification. a. General Use segments.* In the March 22, 2006, revisions to the WQS, the definition at paragraph "a," was revised by striking the language that allowed NPDES discharges from wastewater treatment plants to be considered as general use segments, and striking the language that provides protection in general use segments only at elevated flows, as follows:

"a. General use segments. These are intermittent watercourses and those watercourses which typically flow only for short periods of time following precipitation ~~in the immediate locality or as a result of discharge from wastewater treatment facilities~~, and whose channels are normally above the water table. These waters do not support a viable aquatic community ~~of significance~~ during low flow, and do not maintain pooled conditions during periods of no flow.

~~However during periods when sufficient flow exists in the intermittent watercourse to support various uses, the~~ The general use segments are to be protected for livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, agricultural, domestic and other incidental water withdrawal uses. ~~The aquatic life existing with in these watercourses during elevated flows will be protected from acutely toxic conditions."~~

In Iowa, general use segments are protected by narrative criteria, including the prevention of acutely toxic conditions. The revised definition is consistent with EPA's implementing regulations at 40 C.F.R §§ 131.6(f), 131.10(c), and 131.10(d) that govern how states develop and designate uses for their waters because protection from acutely toxic conditions should occur in all waters and at all times, regardless of the origin or amount of flow. Thus, EPA hereby approves this revision.

F. Subrule 61.3(1), *Surface Water Classification*, paragraph "b," subparagraph (8), renaming and revising the definition of a Significant resource warm water (Class B(WW)), to Warm water – Type 1 (Class "B(WW-1)." Subrule 61.3(1) *Surface Water Classification*, paragraph "b," subparagraph (9), revising the definition of the aquatic life designated use Limited resource warm water (Class B(LR)), to Warm water – Type 2 (Class "B(WW-2)"). Subrule 61.3(1) *Surface water classification*, paragraph "b," subcategory (10), adopting the new aquatic life designated use Warm water – Type 3 (Class "B(WW-3)").

In the March 22, 2006, revisions to the WQS, IDNR established three aquatic life use designations: Class B(WW-1), Class B(WW-2) and Class B(WW-3). Class B(WW-1) and Class B(WW-2) replace Class B(WW) and Class B(LR). Class B(WW-3) is a new use designation.

Class B(WW-1) is defined as follows:

(8) ~~Significant resource warm~~ *Warm* water – *Type 1* (Class "B(WW-*1)").* Waters in which temperature, flow, and other habitat characteristics are suitable ~~for the maintenance of a wide variety of reproducing populations of warm water fish and associated aquatic communities, including sensitive species.~~ *to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrate species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams."*

Class B(WW-2) is defined as follows:

(9) "Warm water – Type 2 (Class "B(WW-2)"). Waters in which flow or other physical characteristics are capable of supporting a resident aquatic community that includes a variety of native non-game fish and invertebrate species. The flow and other physical characteristics limit the maintenance of warm water game fish populations. These waters generally consist of small perennially flowing streams."

Class B(WW-3) designated use is defined as follows:

(10) "Waters in which flow persists during periods when antecedent soil moisture and groundwater discharge levels are adequate; however, aquatic habitat typically consists of nonflowing pools during dry periods of the year. These waters generally include small streams of marginally perennial aquatic habitat status. Such waters support a limited variety of native fish and invertebrate species that are adapted to survive in relatively harsh aquatic conditions."

EPA recognizes that the B(WW-1) use designation is more narrow in scope then the previous Class B(WW) use designation, due to the fact that the previous definition did not include the prerequisite of the water body being "suitable to maintain warm water game fish populations" as a part of the definition. Also included in the revised definition is the statement that Class B(WW-1) waters are generally larger, higher order rivers and streams.

Similar to the revised Class B(WW-1) use definition, the revised Class B(WW-2) aquatic life use designation is now more narrow in scope than the previous Class B(LR) designated use definition due to the required inclusion of "non-game fish." Also included in the revised definition is the statement that Class B(WW-2) waters "generally consist of small perennially flowing streams."

Class B(WW-3) is a new use designation that expands warm water use designations and provides more specificity in the assignment of warm water aquatic life uses. Subcategories of aquatic life uses may be on the basis of attainable habitat (e.g., coldwater versus warmwater habitat); innate differences in community structure and function (e.g., high versus low species richness or productivity); or fundamental differences in important community components (e.g., warmwater fish communities dominated by bass versus catfish). Special uses may also be designated to protect particularly unique, sensitive, or valuable aquatic species, communities, or habitats.

EPA also notes that IDNR adopted new and revised numeric aquatic life criteria for all three aquatic life use designations that is as stringent as those published by EPA under Section 304(a) of the CWA. As described above, EPA is approving those new and revised numeric criteria.

Based on the above, EPA determines that these revisions meet the minimum requirements of Section 303(c)(2) of the CWA, and are consistent with EPA's implementing regulations at 40 C.F.R. §§ 131.6(a) and 131.10. Thus, EPA hereby approves the new aquatic life designated use definitions.

G. Subrule 61.3(1) *Surface Water Classification*, paragraph "b," subparagraph (12) by adopting a new human health (Class "HH") designated use category.

567 IAC 61.3(1)(b)(12) *Human Health (Class "HH")."*

The new Class HH use designation use is defined as follows:

(12) "Human health (Class "HH"). Waters in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption."

EPA interprets "fishable" uses under Section 101(a) of the CWA to include, at a minimum, designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish. In other words, EPA views "fishable" to mean that not only can fish and shellfish thrive in a water body, but when caught, can also be safely eaten by humans. This interpretation also satisfies the Section 303(c)(2)(A) requirement that water quality standards protect human health.

In response to comments, IDNR stated this new designated use category is generally intended to protect against long-term human health effects from consumption of fish. Fish can

bioaccumulate toxic pollutants over time, such as mercury, which is a serious concern because contaminated fish tissue with the presence of even low ambient concentrations of bioaccumulative pollutants in surface waters can pose a human health risk.

Based on the above, EPA determines that subrule 61.3(1), paragraph "b," subparagraph (12) meets the minimum requirements of Section 303(c)(2) of the CWA, and is consistent with EPA's implementing regulations at §§ 131.6(a) and 131.10. EPA hereby approves the new Class HH human health designated use definition.

H. Subrule 61.3(2) introductory paragraph, *General water quality criteria*; revises the definition applicable to the implementation of narrative criteria.

567 IAC 61.3 (455B)(2) *Surface Water Quality criteria. General water quality criteria.* The definition was revised by striking language as follows.

> *"The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times ~~to protect livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, domestic, agricultural and other incidental water withdrawal uses not protected by the specific numerical criteria of subrule 61.3(3),~~ for the uses described in 61.3(1)"a.""*

In the March 22, 2006, revisions to the WQS, IDNR revised this paragraph in order to reflect the revised definition in 61.3(1)(a), General use segments, to ensure that aquatic life uses are protected when flow is present, and to clarify the general or "narrative" water quality criteria that apply to General use segments. The revised definition is consistent with EPA's implementing regulations at 40 C.F.R §§ 131.6(f) and 131.10 and is approved by EPA.

I. Subrule 61.3(3) *Specific water quality criteria*, paragraph *"b,"* introductory paragraph, *Class "B" waters*, to account for the revised aquatic life designated use categories Class B(WW-1), Class B(WW-2), and the new Class B(WW-3).

In the March 22, 2006, revisions to the WQS, IDNR revised the introductory paragraph as follows (strike through deletion and italicized new wording):

> "567 IAC 61.3(3) *Specific water quality criteria*, paragraph "b," *Class "B" waters.* All waters which are designated as Class B(CW1), B(CW2), B(WW-*1*), B(~~LR~~ *WW-2*), *B(WW-3)* or B(LW) are to be protected for wildlife, fish, aquatic, and semiaquatic life. The following criteria shall apply to all Class "B" waters designated in subrule 61.3(5)."

IDNR amended subrule 61.3(3), Specific water quality criteria, introductory paragraph "b, Class "B" waters" to identify the transfer of the previous Class B(WW) and B(LR) aquatic life use designations identified in the paragraph to the revised Class B(WW-1) and Class B(WW-2) use designations, respectively, and to add the new Class B(WW-3). These revisions assign specific numeric water quality criteria to the aquatic life designated uses identified in this paragraph and for which waters are specifically identified in the rule referenced document at

61.3(5), the *Surface Water Classification*. The remaining paragraphs in 61.3(3) identify the criteria that specifically apply to each of the designated uses listed in the introductory paragraph.

EPA has approved the revised and new Class B aquatic life use designation definitions in Section I.F. above and this provision only identifies these revised use categories within the Class B water designation Section of the WQS. EPA has determined that subrule 61.3(3), paragraph "b," introductory paragraph is consistent with 303(c) of the CWA and EPA's implementing regulations at 40 C.F.R §§ 131.6(c) and 131.10, and hereby approves these revisions.

J.

a. Subrule 61.3(3), *Specific water quality criteria*, paragraph "b," *Class "B" waters*, subparagraph (6)3, Early life stage for ammonia criteria revised to include the revised warm water Class B(WW-1) use category.

567 IAC 61.3(3),"b," subparagraph (6) identifies the seasons to be used in "applying the early life stage present chronic criteria noted in Table 3b, "Chronic Criterion for Ammonia in Iowa Streams – Early Life Stages Present.""

In the March 22, 2006, revisions to the WQS, IDNR revised subparagraph (6)3 as follows (strike through deletion and italicized new wording):

"3. For all Class B(WW-*1*) ~~significant resource~~ waters, the early life stage will begin in March and last through September, except ~~the following~~ *as follows*:

- For the following, the early life stage will begin in February and last through September:
  —The entire length of the Mississippi and Missouri Rivers,
  —The lower reach of the Des Moines River south of the Ottumwa dam, and
  —The lower reach of the Iowa River below the Cedar River.
- For the following, the early life stage will begin in April and last through September:
  —All Class B(WW-*1*) waters in the Southern Iowa River Basin,
  —All of the Class B(WW-*1*) reach of the Skunk River, the North Skunk River and the South Skunk River south of Indian Creek (Jasper County), and the Class B(WW-*1*) tributaries to these reaches, and
  —~~The~~ *the* entire Class B(WW-*1*) reach of the English River."

These revisions to subrule 61.3(3)"b"(6)"3" identify the transfer of the previous Class B(WW) waters to the revised Class B(WW-1) aquatic life use designation, and specify when to apply the early life stage chronic criteria for ammonia. The previous Class B(WW) use designation provided the same seasonal protection to early life stages as the revised Class B(WW-1) use designation and these revisions do not represent any change to the chronic numeric ammonia criteria applied to this aquatic life use.

b. Subrule 61.3(3), *Specific water quality criteria*, paragraph "b," *Class "B" waters*, subparagraph (6)4, Early life stage for ammonia criteria revised to include the revised warm water Class B(WW-2) and new B(WW-3) use subcategories.

As with subparagraph (6)3 above, in the March 22, 2006, revisions to the WQS, IDNR revised subparagraph (6)4 as follows (strike through deletion and italicized new wording):

"4. For all Class B(~~LR~~, *WW-2*) *and Class B(WW-3)* waters, the early life stage will begin in April and last through September."

These revisions to subrule 61.3(3)"b"(6)"4" identify the transfer of the previous Class B(LR) waters to the revised Class B(WW-2), identify the new Class B(WW-3) aquatic life use designation, and specify when to apply the early life stage chronic criteria for ammonia to these designated uses. The previous Class B(LR) use designation provides the same seasonal protection to early life stages as the revised Class B(WW-2) use designation; this same level of protection is also applied to the new Class B(WW-3) use designation. These revisions do not represent any change to the chronic numeric ammonia criteria or any change in the manner in which they are applied.

EPA has determined that subrules 61.3(3)"b"(6)"3" and "4" meet the minimum requirements of Section 303(c) of the CWA, and is consistent with EPA's implementing regulations at 40 C.F.R. §§ 131.6 and 131.10. EPA hereby approves these revisions.

K. Subrule 61.3(3), *Specific water quality criteria*, new paragraph *d, Class "HH" waters*.

In the March 22, 2006, revisions to the WQS, IDNR added the following new paragraph to subrule 61.3(3), *Specific water quality criteria*:

"d. Class "HH" waters. Waters which are designated as Class HH shall contain no substances in concentrations which will make fish or shellfish inedible due to undesirable tastes or cause a hazard to humans after consumption."

EPA has determined that subrule 61.3(3), paragraph "d," introductory paragraph specific to the Human Health use designation, is consistent with EPA's implementing regulations at 40 C.F.R. §§ 131.6(a) and 131.10. EPA hereby approves this provision.

L. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents to include the revised Warm Water Class B(WW-1) and Class B(WW-2), and the new Class B(WW-3) designated use categories.

In the March 22, 2006, revisions to the WQS, IDNR incorporated the revised Class B(WW-1) and Class B(WW-2), and the new Class B(WW-3) use designation nomenclature into Table 1, Criteria for Chemical Constituents. As required by EPA's regulation at 40 C.F.R. § 131.6(c), the State must include in its revised standards water quality criteria sufficient to protect the designated uses. States may rely on EPA guidance published pursuant to Section 304(a) of the CWA as justification for the adoption of water quality criteria as stringent as those EPA-recommended values. See 40 C.F.R. §§ 131.11(a) and (b).

EPA has determined that the revisions to subrule 61.3(3), Table 1, Criteria for Chemical Constituents are consistent with the minimum requirements of CWA § 303(c) and EPA's

implementing regulations at 40 C.F.R §§ 131.6, 131.10 and 131.11. EPA hereby approves these revisions.

M. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents to accommodate the new use category Class "HH"; and transfer to Class HH all Human Health – Fish criteria for Class B(WW), Class B(LW) and Class B(CW) designated waters and Human Health – F & W criteria from Class C designated waters.

In the March 22, 2006, revisions to the WQS, IDNR added the following two new footnotes for use in implementing the new human health designated use category:

"(e) This Class HH criterion would be applicable to any Class B(LW), B(CW1), B(WW-1), B(WW-2), or B(WW-3) water body that is also designated Class HH.

(f) This Class HH criterion would be applicable to any Class C water body that is also designated Class HH."

IDNR provided information in response to EPA's request for a more detailed explanation of the new Class HH designation, the transfer of HH criteria and footnotes (e) and (f) of Table 1, Criteria for Chemical Constituents, in 61.3(3), in a cover letter to the March 22, 2006, submission to EPA.

The human health fish consumption use is now separated from the aquatic life use designations. The separation of these uses allows IDNR flexibility when determining whether fish harvest for human consumption is occurring on any given stream, not just one specific stream class (i.e., the old Class B(WW) and B(LW) use designations). EPA expects IDNR to continue to evaluate the need to designate waters for human health/fish consumption and to update those use designations accordingly on a regular basis.

EPA has determined that subrule 61.3(3), Table 1, Criteria for Chemical Constituents, to accommodate the new use category Class "HH"; and transfer to Class HH all Human Health – Fish criteria for Class B(WW), Class B(LW) and Class B(CW) designated waters and Human Health – F & W criteria from Class C designated waters, is consistent with EPA's implementing regulations at 40 C.F.R. §§ 131.6(a) and 131.10. EPA hereby approves this provision.

N. Subrule 61.3(3), header of Table 2, Criteria for Dissolved Oxygen to include the revised warm water Class B (WW-1), B(WW-2) and B(WW-3) use categories.

In the March 22, 2006, revisions to the WQS, IDNR amended subrule 61.3(3), Specific water quality criteria, Table 2, Criteria for dissolved oxygen, to incorporate the revised Class B(WW-1), B(WW-2) and new B(WW-3) use designation nomenclature. These revisions establish the same aquatic life dissolved oxygen criteria for the protection of the revised Class B(WW-1) and B(WW-2) uses, as was used to protect the previously defined Class B(WW) and B(LR) use designations, respectively. The dissolved oxygen criteria associated with the Class B(LR) use was also retained for the new Class B(WW-3) use. The associated DO criteria provide a reasonable and adequate degree of protection for freshwater aquatic life, and include

an equivalent instantaneous minimum sufficient to protect warm water aquatic life for all three aquatic life uses. These criteria represent dissolved oxygen concentrations consistent with EPA 304(a) guidance and the requirements of Section 303(c) of the CWA.

As a result, EPA hereby approves this revision because it results in criteria that ensure the protection of the designated uses in accordance with Section 303(c) of the CWA and EPA's implementing regulations at 40 C.F.R. §§ 131.6(c) and 131.11(b)(1)(i). EPA hereby approves these revisions.

O. Subrule 61.3(3), header of Table 3a, Acute Criterion for Ammonia in Iowa Streams to include the revised warm water Class B (WW-1), B(WW-2) and B(WW-3) use categories.

In the March 22, 2006, revisions to the WQS, IDNR amended subrule 61.3(3), header for Table 3a, Acute Criterion for Ammonia in Iowa Streams to accommodate the revised and new warm water aquatic life use designations heading of Class B(WW-1), B(WW-2) and B(WW-3).

On September 18, 2000, IDNR also revised its acute aquatic life use criteria for ammonia and adopted the 1999 EPA guidance published pursuant to Section 304(a) of the CWA. EPA approved the acute ammonia water quality criteria to protect aquatic life on February 6, 2002, and IDNR has not revised these numeric criteria.

EPA has approved the revised and new Class B aquatic life use designations definitions in Sections I.E., I.F., and I.G. above, and these revisions do not represent any change to the numeric ammonia criteria applied to these aquatic life uses. EPA approves this revision, which transfers the previous Class B waters to the revised and new Class B aquatic life use designations, because it results in ammonia criteria that ensure the protection of Class B designated uses in accordance with Section 303(c) of the CWA and EPA's implementing regulations at 40 C.F.R. §§ 131.6, 131.10 and 131.11(b)(1)(i).

P. Subrule 61.3(5) *Surface water classification*, a rule-referenced document, by adding the Class B(WW-1), B(WW-2) and B(WW-3) designated uses to the header of the Surface Water Classification Table; placing the previous Class B(WW) waters into the new Class B(WW-1) designated use, and placing the previous Class B(LR) waters into the new Class B(WW-2) designated use. Class A1 primary contact recreation is also assigned to all rivers and streams identified with the Surface Water Classification Table. The *Surface water classification* document was further revised by striking the date "December 15, 2004" and inserting [effective March 22, 2006].

Iowa's prior Surface water classification document was adopted into the Iowa WQS on December 15, 2004, and was partially approved by EPA on December 28, 2005. In the March 22, 2006, revisions to the WQS, IDNR amended Chapter 61, Water Quality Standards, subrule 61.3(5), in order to modify the effective date of the rule-referenced document entitled, "*Surface water classification,"* referred to in the subrule.

The March 22, 2006, revisions to the "*Surface water classification"* accommodate the placement of all water bodies from the previous Class B(WW) and B(LR) use designations into the revised Class B(WW-1) and Class B(WW-2) use designations, respectively, within the Surface Water Classification Table; Class A1 primary contact recreation is assigned to all rivers and streams identified within the Classification Table. No waters have been assigned to the new Class B(WW-3) use designation at this time.

EPA has determined that the above revisions made to subrule 61.3(5) meet the minimum requirements of Section 303(c) of the CWA, and are consistent with EPA's implementing regulations at 40 C.F.R. §§ 131.6, and 131.10. EPA hereby approves these revisions.

SECTION II - ITEMS ON WHICH EPA IS TAKING NO ACTION

Section 303(c) of the CWA requires EPA to review and approve revision to states' WQS. Numerous revisions IDNR made to the WQS regulations (567 IAC Chapter 61) do not constitute new or revised WQS. As such, EPA is not required under Section 303(c) of the CWA to review and approve such changes, outlined below. The revisions discussed below in subsections A – D were substantive additions or changes to Iowa's regulations, but do not constitute new or revised WQS requiring EPA action, or were subsequently revised with the November 28, 2007, regulation (C). Other revisions (subsections E - H) are administrative actions which do not require EPA action.

A. Subrule 61.2(5) *Implementation Strategy* by adding the new provision at 61.2(5)e which provides language about performing use assessments and related use attainability analyses.

567 IAC 61.2(5) *Implementation Strategy*

61.2(5) e. The department may perform use assessment and related use attainability analyses on water bodies where uses may not be known or adequately documented. The preparation of use attainability analysis documents will consider available U.S. Environmental Protection Agency guidance or other applicable guidance. Credible data and documentation will be used to assist in the preparation of use assessments and use attainability analysis reports.

In the March 22, 2006, revisions to the WQS, IDNR added this language to its water quality standards to be consistent with its implementation of the use designation process. EPA is taking no action on this provision because it does not fall under its CWA § 303(c) authority.

B. Subrule 61.3(7), Warm water stream use assessment and attainability analysis protocol.

In the March 22, 2006, revisions to the WQS, IDNR adopted a new Chapter 61, subrule 61.3(7), *Warm water stream use assessment and attainability analysis protocol* as a rule referenced document. The protocol is intended to promote consistency in evaluating warm water streams throughout Iowa, and to notify the public of the procedures generally employed by

IDNR staff in evaluating waters of the state. The protocol provides guidance regarding the approach for developing stream use recommendations and use attainability of a water body. EPA is taking no action on the following sections of the Warm water stream use assessment and attainability analysis protocol:

- Section I. Background;
- Sections III, IV, and V.
- Appendices 1, 2, 3, 4, 5, and 6.

EPA is taking no action on these provisions because they do not fall under its CWA § 303(c) authority. Note: EPA has approved the aquatic life designated uses previously in today's action, so does not need to take further action on Section II of the protocol.

C. Subrule 61.3(3) to transfer numeric criteria from Table 1, Criteria for Chemical Constituents, from the current Class B(LR) use designation to the revised Class B(WW-2) use designation, and the transfer of the current Class B(LR) numeric criteria to the new Class B(WW-3) use designation.

The subsequent November 28, 2007, adoption of new and revised numeric criteria for the protection of aquatic life (See Table1) revised the previously adopted numeric criteria, thus, EPA is not taking action on this previously submitted provision.

D. Subrule 61.3(3), Table 1, Criteria for Chemical Constituents: Water quality criteria for protection of human health - 1,2-trans-Dichloroethylene.

Subsequent to the November 28, 2007, submission to EPA, EPA identified one error in the criteria adoption for 1,2-trans-Dichloroethylene; the criterion values were transposed for the fish and water, and fish tissue criteria. IDNR is now aware of this error, and has committed to correct this error in the next WQS rule revision.

E. Rescind and reserve subrule 61.3(3), paragraph "b," subparagraph (3), numbered paragraph "3." This provision regarding human health was moved to a new subrule 61.3(d)(1).

F. Rescind and reserve subrule 61.3(3), paragraph "b," subparagraph (4). This provision regarding human health was moved to a new subrule introductory paragraph at 61.3(d).

G. Subrule 61.3(1), paragraph "b," by renumbering subparagraphs (10) and (11), as (11) and (13), to accommodate the new use categories Class "B(WW-3)" and Class "H."

H. Subrule 61.3(1) *Surface water classification*, paragraph *b, Designated use segments,* by renumbering subparagraphs (10) and (11), as (11) and (13), to accommodate the new use categories Class "B(WW-3)" and Class "HH."

Iowa incorporated the new use designation nomenclature into the ***Designated use segments*** section of the water quality standards to accommodate the two new use designations of class B(WW-3) warm water aquatic life and "HH" human health. This is an administrative action which does not provide any change in protection for human health or aquatic life under the Iowa water quality standards; as noted above, EPA has approved the new Class B(WW-3) aquatic life and human health "HH" use designations in Sections I.G. and I.H above, respectively.

Table 1
Summary of New and Revised Numeric Criteria for the Protection of Aquatic Life
Chapter 61 Subrule 61.3(3) Table 1 Criteria for Chemical Constituents

#	Pollutant/ CAS #	EPA Acute Aquatic Life Use µg/L	B(WW-1) Acute µg/L	B(WW-2) Acute µg/L	B(WW-3) Acute µg/L	EPA Chronic Aquatic Life Use µg/L	B(WW-1) Chronic µg/L	B(WW-2) Chronic µg/L	B(WW-3) Chronic µg/L	
1	Aldrin 309002	3	3*	3*	3*	NC	NC	NC	NC	65FR31682 05/18/00
2	Aluminum 7429905	750	~~4539~~ 750	~~9035~~ 750	~~9035~~ 750	87	~~388~~ 87	~~773~~ 87	~~773~~ 87	53FR33178 1988
3	Arsenic 7440382	340	~~360~~ 340	~~1800~~ 340	~~1800~~ 340	150	~~200~~ 150	~~1000~~ 150	~~1000~~ 150	65FR31682 05/18/00
4	Cadmium 7440439	2	~~75~~ 2.13	~~100~~ 2.13	~~100~~ 2.13	0.25	~~15~~ 0.27	~~25~~ 0 .27	~~25~~ 0 .27	EPA-822-R-01-001 04/12/01 65FR31682 05/18/00
5	Chromium VI 18540299	16	~~60~~ 16	~~300~~ 16	~~300~~ 16	11	~~40~~ 11	~~200~~ 11	~~200~~ 11	65FR31682 05/18/00
6	Copper 7440508	13	~~60~~ 14	~~90~~ 14	~~90~~ 14	9	~~35~~ 9.3	~~55~~ 9.3	~~55~~ 9.3	65FR31682 05/18/00
7	Lead 7439921	65	~~200~~ 81.7	~~750~~ 81.7	~~750~~ 81.7	2.5	~~30~~ 3.2	~~80~~ 3.2	~~80~~ 3.2	65FR31682 05/18/00
8	Mercury 7439976	1.4	~~4~~ 1.64	~~6.9~~ 1.64	~~6.9~~ 1.64	0.77	~~2.1~~ 0.9	~~3.7~~ 0.9	~~3.7~~ 0.9	62FR42160 09/05/97
9	Nickel 7440020	470	~~5800~~ 470	~~7000~~ 470	~~7000~~ 470	52	~~650~~ 52	~~750~~ 52	~~750~~ 52	65FR31682 05/18/00
10	Selenium 7782492	NC	~~175~~ 19.3	~~175~~ 19.3	~~175~~ 19.3	5	~~125~~ 5	~~125~~ 5	~~125~~ 5	65FR31682 05/18/00
11	Silver 7440224	3.2	~~100~~ 3.8	~~100~~ 3.8	~~100~~ 3.8	NC	NC	NC	NC	65FR31682 05/18/00
12	Zinc 7440666	120	~~500~~ 120	~~2200~~ 120	~~2200~~ 120	120	~~450~~ 120	~~2200~~ 120	~~2200~~ 120	65FR31682 05/18/00
	Cyanide 57125	22	~~45~~ 22	~~45~~ 22	~~45~~ 22	5.2	~~10~~ 5.2	~~10~~ 5.2	~~10~~ 5.2	EPA-820/B-96-001 April 2001
14	Chlordane 57749	2.4	~~2.5~~ 2.4	~~2.5~~ 2.4	~~2.5~~ 2.4	0.0043	~~0.004~~ .0043	~~0.15~~ .0043	~~0.15~~ .0043	65FR31682 05/18/00
15	4-4'-DDT 50293	1.1	~~0.8~~ 1.1	~~0.95~~ 1.1	~~0.95~~ 1.1	0.001	0.001	~~0.029~~ 0.001	~~0.029~~ 0.001	65FR31682 05/18/00
16a	alpha-Endosulfan 959988	0.22	~~0.3~~ 0.22	~~0.3~~ 0.22	~~0.3~~ 0.22	0.056	~~0.15~~ 0.056	~~0.15~~ 0.056	~~0.15~~ 0.056	65FR31682 05/18/01
16b	beta-Endosulfan 33213659	0.22	~~0.3~~ 0.22	~~0.3~~ 0.22	~~0.3~~ 0.22	0.056	~~0.15~~ 0.056	~~0.15~~ 0.056	~~0.15~~ 0.056	65FR31682 05/18/02
17	Heptachlor 76448	0.52	~~0.38~~ 0.52	~~0.38~~ 0.52	~~0.38~~ 0.52	0.0038	0.0038	~~0.01~~ 0.0038	~~0.01~~ 0.0038	
18	Heptachlor Epoxide 1024573	0.52	0.52*	0.52*	0.52*	0.0038	0.0038*	0.0038*	0.0038*	65FR31682 05/18/02
19	Polychlorinated Biphenyls: PCBs	NC	2	2	2	0.014	0.014	~~1~~ 0.014	~~1~~ 0.014	65FR31682 05/18/03
20	Total Residual Chlorine 7782505	19	~~35~~ 19	~~40~~ 19	~~40~~ 19	11	~~20~~ 11	~~25~~ 11	~~25~~ 11	Gold Book May 1986
21	Toxaphene 8001352	0.73	0.73	0.73	0.73	0.0002	~~0.037~~ 0.002	~~0.037~~ 0.002	~~0.037~~ 0.002	65FR31682 05/18/04

NC = No Criteria
* = New Criteria; Strike through = Revised Criteria

Table 2
Summary of New and Revised Numeric Criteria for the Protection of Human Health
Chapter 61 Subrule 61.3(3) Table 1, Criteria for Chemical Constituents

#	Pollutant/CAS #	IA Human Health F+W µg/L	EPA Human Health Org. + Water µg/L	IA Human Health Organism Only µg/L	EPA Human Health Organism Only µg/L	Carcinogen (can use 10 -5 risk Factor)	FR Notice/ Last Update
1	Aldrin 309002	0.00049*	0.000049	0.00050*	0.00005	yes	65FR66443 11/03/00
2	Antimony 7440360	~~14~~ 5.6	5.6	640*	640		65FR66443 11/03/00
3	Benzene 71432	~~12~~ 22	2.2	~~712.8~~ 510	51	yes	IRIS 01/19/0065FR66443 11/03/00
4	Benzo-a-Pyrene 50328	~~0.044~~ 0.038	0.0038	0.18*	0.018	yes	65FR66443 11/03/00
5	Bromoform 75252	43	4.3	~~3600~~ 1400	140	yes	65FR66443 11/03/00
6	Carbon Tetrachloride 56235	~~2.5~~ 2.3	0.23	~~44.2~~ 16	1.6	yes	65FR66443 11/03/00
7	Chlordane 57749	~~0.021~~ 0.008	0.0008	~~0.006~~ 0.0081	0.00081	yes	65FR66443 11/03/00
8	Chlorobenzene 108907	130*	130	~~21~~ 1600	1,600		68FR75510 12/31/03
9	Chlorodibromomethane 124481	~~4.1~~ 4.0	0.4	~~340~~ 130	13	yes	65FR66443 11/03/00
10	Cyanide 57125	~~700~~ 140	140	140*	140		68FR75510 12/31/03
11	4-4'-DDT 50293 [Concentrations of 4,4-DDT or its metabolites; 4,4-DDE and 4,4-DDD, individually shall not exceed the human health criteria]	~~0.0059~~ 0.0022	0.00022	~~0.0059~~ 0.0022	0.00022	yes	65FR66443 11/03/00
12	1,4-Dichlorobenzene (para) 106467	~~400~~ 63	63	~~2.6~~ 190	190		68FR75510 12/31/03
13	3-3'-Dichlorobenzidine 91941	~~0.4~~ 0.21	0.021	~~0.2~~ 0.28	0.028	yes	65FR66443 11/03/00
14	Dichlorobromomethane 75274	~~5.6~~ 5.5	0.55	~~460~~ 170	17	yes	65FR66443 11/03/00
15	1,2-Dichloroethane 107062	3.8	0.38	~~986~~ 370	37	yes	65FR66443 11/03/00
16	1,1-Dichloroethylene 75354	~~0.57~~ 330	330	~~32~~ 7100	7,100	yes	68FR75510 12/31/03
17	1,2-Dichloropropane 78875	~~5.2~~ 5	0.5	150*	15	yes	65FR66443 11/03/00
18	Bis(2-Ethylhexyl) Phthalate 117817	~~18~~ 12	1.2	22*	2.2	yes	65FR66443 11/03/00
19	Dieldrin 60571	~~0.0014~~ 0.00052	0.000052	~~0.0014~~ 0.00054	0.000054	yes	65FR66443 11/03/00
20	2,3,7,8-TCDD Dioxin 1746016	~~0.00000013~~ 5.0 E-8	5.00E-09	~~0.00014~~ 5.1E-8	5.1E-09	yes	65FR66443 11/03/00
21	alpha-Endosulfan[1] 959988	~~110~~ 62	62	~~240~~ 89	89		65FR66443 11/03/00
22	beta-Endosulfan[1] 33213659	~~110~~ 62	62	~~240~~ 89	89		65FR66443 11/03/00
23	Endrin 72208	~~0.76~~ 0.059	0.059	~~0.81~~ 0.06	0.06		68FR75510 12/31/03
24	Ethylbenzene 100414	~~3100~~ 530	530	2100*	2,100		68FR75510 12/31/03
25	Heptachlor 76448	~~0.0021~~ 0.00079	0.000079	~~0.002~~ 0.00079	0.000079	yes	65FR66443 11/03/00
26	Heptachlor Epoxide 1024573	~~0.001~~ 0.00039	0.000039	0.00039*	0.000039	yes	65FR66443 11/03/00
27	Hexachlorobenzene 118741	~~0.0075~~ 0.0028	0.00028	0.0029*	0.00029	yes	65FR66443 11/03/00
28	gamma-BHC (Lindane) 58899	~~0.19~~ 0.98	0.98	~~0.63~~ 1.8	1.8		68FR75510 12/31/03
29	Hexachlorocyclopentadiene 77474	~~240~~ 40	40	1100*	1,100		65FR66443 11/03/00

30	Nickel 7440020	610	610	~~4584~~ 4600	4,600		65FR31682 05/18/00
31	Pentachlorophenol 87865	~~0.28~~ 2.7	0.27	~~82~~ 30	3	yes	65FR66443 11/03/00
32	Polychlorinated Biphenyls: PCBs	~~0.0017~~ 0.00064	0.000064	~~0.0004~~ 0.00064	0.000064	yes	65FR66443 11/03/00
33	Polynuclear Aromatic Hydrocarbons[2]	~~0.044~~ 0.038	0.0038	~~0.3~~ 0.18	0.018	yes	65FR66443 11/03/00
34	Phenol 108952	21	21,000	~~300~~ 1700000	1,700,000		65FR66443 11/03/00
35	Thallium 7440280	~~1.7~~ 0.24	0.24	0.47*	0.47		68FR75510 12/31/03
36	Toluene 108883	~~6800~~ 1300	1,300	~~300000~~ 15000	15,000		68FR75510 12/31/03
37	Toxaphene 8001352	~~0.0073~~ 0.0028	0.00028	~~0.0075~~ 0.0028	0.00028	yes	65FR66443 11/03/00
38	Trichloroethylene 79016	~~27~~ 25	2.5	~~807~~ 300	30	yes	65FR66443 11/03/00
39	Vinyl Chloride 75014	~~20~~ 0.25	0.025	~~5250~~ 24	2.4	yes	68FR75510 12/31/03
40	Zinc 7440666	~~9100~~ 7400	7,400	~~5000~~ 26000	26,000		65FR66443 11/03/00

* = New Criteria; Strike-through = Revised Criteria; 1 = includes alpha-endosulfan, and endosulfan in combination or as individually measured; 2 = includes the sum of known and suspected carcinogenic PAHs (includes benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, & indeno(1,2,3-cd)pyrene.

Table 3
Summary of new equations for calculating total recoverable metals using site-specific hardness values for protection of aquatic life
Chapter 61 Subrule 61.3(3), Table 1, Criteria for Chemical Constituents Footnotes (h)-(l)

h) Class B(WW-1), B(WW-2), & B(WW-3) criteria listed in the main table are based on a hardness of 100 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for cadmium is a function of hardness (as $CaCO_3$ (mg/l)) using the equation for each use according to the following table:

	B(WW-1)	B(WW-2)	B(WW-3)
Acute	$e^{[1.0166\ln(\text{Hardness}) - 3.924]}$	$e^{[1.0166\ln(\text{Hardness}) - 3.924]}$	$e^{[1.0166\ln(\text{Hardness}) - 3.924]}$
Chronic	$e^{[0.7409\ln(\text{Hardness}) - 4.719]}$	$e^{[0.7409\ln(\text{Hardness}) - 4.719]}$	$e^{[0.7409\ln(\text{Hardness}) - 4.719]}$

(i) Class B(WW-1), B(WW-2), & B(WW-3) criteria listed in the main table are based on a hardness of 100 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for copper is a function of hardness ($CaCO_3$ (mg/l)) using the equation for each use according to the following table:

	B(WW-1)	B(WW-2)	B(WW-3)
Acute	$e^{[0.9422\ln(\text{Hardness}) - 1.700]}$	$e^{[0.9422\ln(\text{Hardness}) - 1.700]}$	$e^{[0.9422\ln(\text{Hardness}) - 1.700]}$
Chronic	$e^{[0.8545\ln(\text{Hardness}) - 1.702]}$	$e^{[0.8545\ln(\text{Hardness}) - 1.702]}$	$e^{[0.8545\ln(\text{Hardness}) - 1.702]}$

(j) Class B(WW-1), B(WW-2), & B(WW-3) criteria listed in the main table are based on a hardness of 100 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for lead is a function of hardness ($CaCO_3$ (mg/l)) using the equation for each use according to the following table:

	B(WW-1)	B(WW-2)	B(WW-3)
Acute	$e^{[1.2731\ln(\text{Hardness}) - 1.46]}$	$e^{[1.2731\ln(\text{Hardness}) - 1.46]}$	$e^{[1.2731\ln(\text{Hardness}) - 1.46]}$
Chronic	$e^{[1.2731\ln(\text{Hardness}) - 4.705]}$	$e^{[1.2731\ln(\text{Hardness}) - 4.705]}$	$e^{[1.2731\ln(\text{Hardness}) - 4.705]}$

(k) Class B(WW-1), B(WW-2), & B(WW-3) criteria listed in the main table are based on a hardness of 100 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for nickel is a function of hardness ($CaCO_3$ (mg/l)) using the equation for each use according to the following table:

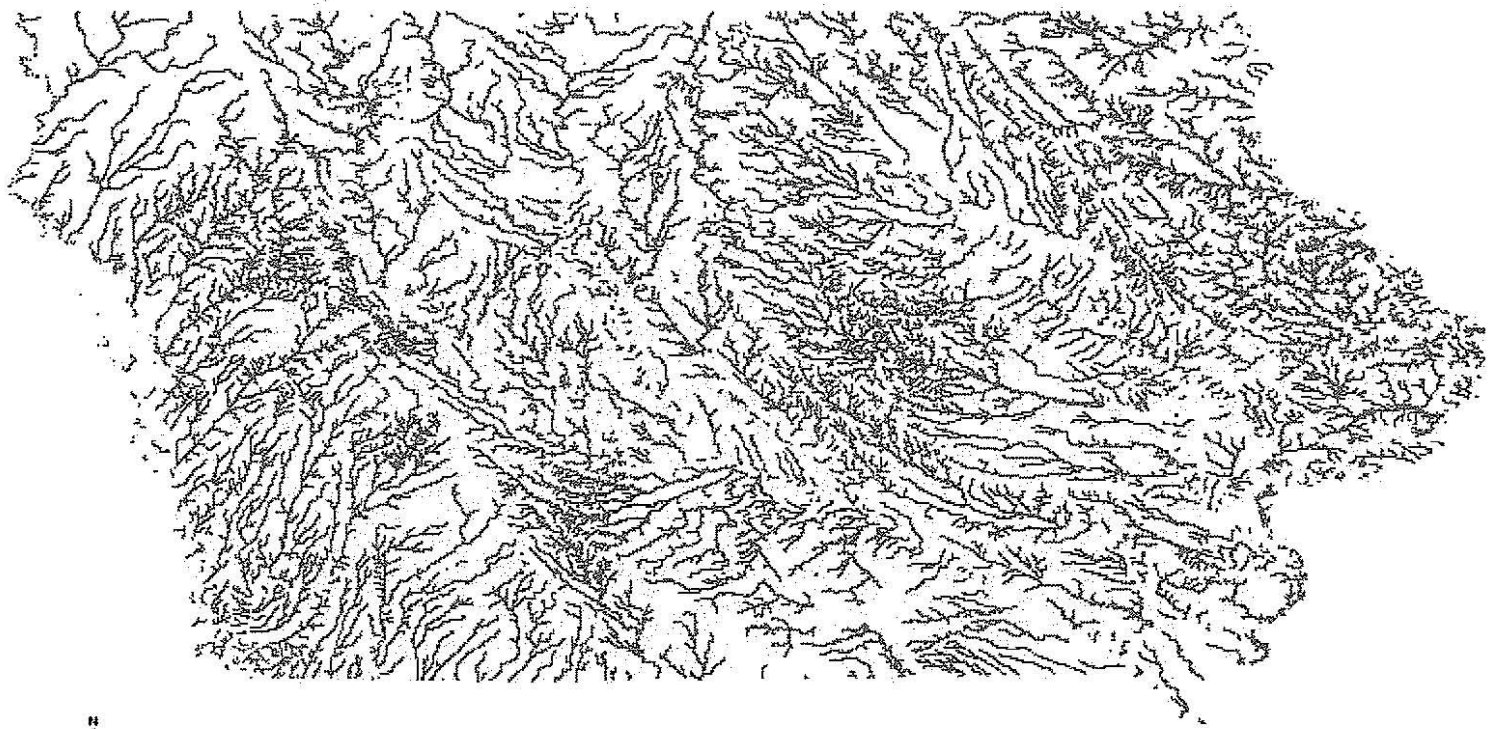
	B(WW-1)	B(WW-2)	B(WW-3)
Acute	$e^{[0.846\ln(\text{Hardness}) + 2.255]}$	$e^{[0.846\ln(\text{Hardness}) + 2.255]}$	$e^{[0.846\ln(\text{Hardness}) + 2.255]}$
Chronic	$e^{[0.846\ln(\text{Hardness}) + 0.0584]}$	$e^{[0.846\ln(\text{Hardness}) + 0.0584]}$	$e^{[0.846\ln(\text{Hardness}) + 0.0584]}$

(l) Class B(WW-1), B(WW-2), & B(WW-3) criteria listed in the main table are based on a hardness of 100 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for zinc is a function of hardness ($CaCO_3$ (mg/l)) using the equation for each use according to the following table:

	B(WW-1)	B(WW-2)	B(WW-3)
Acute	$e^{[0.8473\ln(\text{Hardness}) + 0.884]}$	$e^{[0.8473\ln(\text{Hardness}) + 0.884]}$	$e^{[0.8473\ln(\text{Hardness}) + 0.884]}$
Chronic	$e^{[0.8473\ln(\text{Hardness}) + 0.884]}$	$e^{[0.8473\ln(\text{Hardness}) + 0.884]}$	$e^{[0.8473\ln(\text{Hardness}) + 0.884]}$

ATTACHMENT A

Perennial Steams from NHD Coverage (24,286 Miles)



Total Segments from this NHD selection = 72,363 Miles

According to the 2002 - 305b - National Assessment Database there are 71,665 miles of stream in Iowa,
The NAD may have used different treatment of the border streams of the may be some other explanation of the slight difference.